

REMARKS

Applicant has carefully studied the Office Action of December 28, 2004, and offers the following remarks to accompany the above amendments.

Initially, Applicant amends paragraph 0018 to include a missing period. No new matter is added.

Applicant additionally amends claims 8-12, 19, 20, 21, 23 and 32 to insure uniform claim terminology throughout the claim set. No new matter is added.

Before addressing the rejection, Applicant provides a brief summary of the present invention so that the remarks related to the rejection are considered in the proper context. The present invention is a scheduling system for a wireless network. That is, the present system is designed to communicate with a plurality of access terminals concurrently, and has to prioritize which access terminal will receive the next transmission from the wireless interface.

Specifically, the wireless interface can only send one transmission at a time and has to determine to whom it should be addressed. To make this determination, the present invention initially stores the data received over the communication network as units in a number of queues corresponding to the number of access units. The system calculates a temporal fading factor that compares a current channel condition to an average channel condition for each access terminal. This temporal fading factor is discussed in paragraph 0023 of the Specification, and is not just a signal path fading factor. The system also determines a throughput fairness factor. This fairness factor is designed to insure that access terminals that have poor signal quality continue to receive some data, even if such transmissions do not maximize overall throughput for the system. The system also determines a delay Quality of Service factor. This factor relates to how long packets can be delayed while waiting in the queues and still comply with the required Quality of Service. For example, packets involved in streaming content cannot wait long or it will disrupt the stream. These various factors are then used to determine a weighting factor. The weighting factor is applied to each queue so that the system knows from which queue to select the information for the next transmission.

Claims 1-33 were rejected under 35 U.S.C. § 103 as being unpatentable over Buehrer et al. (hereinafter "Buehrer") in view of Hanson et al. (hereinafter "Hanson"), and further in view of An et al. (hereinafter "An"). Applicant respectfully traverses. For the Patent Office to combine references in an obviousness rejection, the Patent Office must do two things. First, the

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Patent Office must articulate a motivation to combine the references. Second, the Patent Office must support the articulated motivation with actual evidence. *In re Dembicza*k, 175 F.3d 994, 999 (Fed. Cir. 1999). It is worth noting that the court in *Dembicza*k acknowledged older case law that indicated that the range of sources from which the motivation may come is varied, but emphasized that the range of available sources did not diminish the need for actual evidence. *Id.* Once a proper combination has been assembled, the Patent Office must still show where each and every element of the claims is located. MPEP § 2143.03.

As discussed above, the claimed invention is designed to balance several factors so as to come up with a weighting factor that determines from which queue the information for the next transmission of the wireless system should come. In contrast, the references of record's weighting function are directed to reducing bit error rates and are not used to select information from a queue. Thus, the weighting function of the references of record is not the same thing as Applicant's and does not perform the same function. A more detailed analysis of the rejection follows.

Applicant initially traverses the rejection because the Patent Office has not properly supported the motivations to combine the references as required by *In re Dembicza*k. Applicant notes that *In re Fine* 837 F.2d 1071 (Fed. Cir. 1988) and *In re Jones* 958 F.2d 347 (Fed. Cir. 1992), both indicate that there are a number of sources from which the Patent Office can find the motivation to combine references, but *Dembicza*k, while expressly acknowledging the range of sources identified by the Court in *Fine*, emphasized that the range of available sources did not diminish the need for actual evidence. *Dembicza*k at 999.

The Patent Office opines that the combination of Buehrer and Hanson would be to "allow determination of the throughput fairness factor so that the system would route the data based on the path signal." However, this statement lacks any evidence to support it. As such, the motivation is not proper. Since the motivation is not proper, the combination is not proper, and the references must be considered individually. The Patent Office cannot show where the references individually teach or suggest all the claim elements. Since the combination is improper, and the references individually do not teach or suggest all the elements of the claim, claim 1 is not obvious over the references of record and should be allowed.

Even if the motivation for the combination of Buehrer and Hanson were properly supported, a point which Applicant does not concede, the motivation itself is not compelling.

There is no indication that using a throughput fairness factor has anything to do with routing the data based on the path signal. These two concepts are different concepts. Throughput fairness relates to making sure that all entities receive some data even if the signal path to particular entities is poor. In contrast, if the path signal is the criteria for routing, then fairness is sacrificed and the stated motivation is not satisfied. Thus, the Patent Office's use of the throughput fairness factor for routing does not guarantee that the system routes the data based on the path signal. To this extent, the motivation is improper. As discussed above, since the motivation is improper, the claim should be allowed.

Applicant further notes that the motivation to combine An is not supported by the requisite actual evidence. Specifically, the Patent Office opines that the motivation to combine An with Buchrer and Hanson is so that the system would achieve a fast routing of the data. This assertion lacks the requisite actual evidence. Since the asserted motivation lacks the requisite actual evidence, the motivation is improper. As explained above, since the motivation is improper, the claim should be allowed for this reason as well.

Claim 1 recites three factors and the calculation of a weighting factor. The Patent Office opines that the temporal fading factor is shown at Buchrer col. 3, lines 44-57. Applicant respectfully traverses. Claim 1 recites that the temporal fading factor is based on a current channel condition relative to an average channel condition for each of the access terminals. The Patent Office explains that the fading factor of Buehrer is determined depending on the path the signals will travel to the mobile station 12. Even if this statement is true, there is no interrelation in the reference or the Patent Office's statement between the channel condition to an average channel condition as recited in the claim. Since the reference does not show the element for which it is cited, and the Patent Office has not explained where in the other references the element can be found, the combination of references does not teach or suggest the claim element. Since the combination of references does not teach or suggest the claim element, the Patent Office has not established *prima facie* obviousness. Since the Patent Office has not established obviousness, claim 1 is allowable for this reason as well.

The Patent Office further opines that Buehrer teaches the weighting factor based on the throughput fairness factor (see Office Action of December 28, 2004, page 3, lines 9-10). This statement contradicts the statement later that admits that Buehrer fails to disclose a throughput fairness factor (see Office Action of December 28, 2004, page 3, lines 18-19). The latter

statement by the Patent Office is correct. Since Buehrer does not teach the element that the Patent Office indicates it does, and the Patent Office has not shown where the element is taught in the other references of record, the combination of references does not teach or suggest calculating the weighting factor based on the throughput fairness factor. Since the combination of references does not teach the claim element, the Patent Office has not established *prima facie* obviousness. Since the Patent Office has not established obviousness, claim 1 is allowable for this reason as well.

Claim 1 recites "...select a unit for transmission via the wireless interface from one of the plurality of queues based on the weighting factor." The Patent Office opines that Buehrer teaches this element at Buehrer col. 3, line 64 to col. 4, line 12, stating "the base station 11 select the mobile station 12 based on the weighing factor and fading factors associated with the transmitting signals." This statement is demonstrably false. Buehrer, col. 3, line 64-col. 4, line 12 states in full:

The signal received at the mobile station 12 from a base station having two antennas, for example, may in general be modeled as:

{equation removed for simplicity}

where  $\alpha$  and  $\omega$  are the weighing factors applied to the transmit signals of antennas 18 and 19, respectively,  $\gamma_1$  and  $\gamma_2$  are the fading factors associated with the transmit signals as they travel from antennas 18 and 19 to the mobile station 12,  $x(t)$  is the transmitted data signal which is a function of the data symbols  $b(t)$ , and  $n(t)$  is thermal noise present at the receiver 17. At the base station 11, it will be assumed herein that a common broadcast pilot signal is transmitted to all mobile stations for use as a coherent reference, as will be appreciated by those of skill in the art.

Applicant has carefully studied this passage, and while it does discuss weighing factors, the passage indicates that the weighing factors are applied to the transmit signals of the antennas, not to the queues from which a unit is selected for transmission. Thus, the weighing factors of Buehrer are used in the actual transmission process, not in the selection process as recited in the claim. To this extent, the reference does not teach the element for which it is cited. Since the Patent Office has not identified where the other references teach or suggest the recited claim element, and Buehrer does not teach the element, the combination of the references cannot teach or suggest the claim element. Since the combination does not teach or suggest the claim

element, the Patent Office has not established obviousness. Since the Patent Office has not established obviousness, the claim is allowable.

Claims 2-11 depend from claim 1, and are allowable at least for the same reasons.

Claim 12 recites, in method form, essentially the same elements as discussed in claim 1. The Patent Office does not provide any additional analysis for claim 12, and thus, claim 12 is allowable at least for the same reasons that claim 1 is allowable.

Claims 13-22 depend from claim 12, and are allowable at least for the same reasons.

Claim 23 recites, in computer software form, essentially the same element as discussed in claim 1. The Patent Office does not provide any additional analysis for claim 23, and thus, claim 23 is allowable at least for the same reasons that claim 1 is allowable.

Claims 24-33 depend from claim 23, and are allowable at least for the same reasons.

Applicant requests reconsideration of the rejection in light of the remarks presented herein. The weighing factor of the reference is not the same as the recited weighting factor of the claims and does not perform the same selecting function recited in the claims. Applicant earnestly solicits claim allowance at the Examiner's earliest convenience.

Respectfully submitted,

WITHROW & TERRANOVA, P.L.L.C.

By:

Benjamin S. Withrow  
Registration No. 40,876  
P.O. Box 1287  
Cary, NC 27512  
Telephone: (919) 654-4520

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